ENTOMOLOGICAL NEWS

FEBRUARY 1947

Vol. LVIII **No. 2**

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PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY

THE AMERICAN ENTOMOLOGICAL SOCIETY

PRINCE AND LEMON STS., LANCASTER, PA.

AND

THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $3.00 domestic; $3.30 foreign; $3.15 Canada. Entered as second-class matter April 19, 1943, at the post office at Lancaster, Pa., under the Act of March 3, 1879. Acceptance for mailing at the special rate of postage prescribed for in Section 1, Act of October 3, 1917, authorized January 15, 1921.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. R. G. SCHMIEDER, Editor. Editorial Staff: E. T. CRESSON, JR., E. J. F. MARX, E. T. MOUL, J. A. G. REHN, and A. G. RICHARDS.

Subscription price, per yearly volume of 10 numbers: Domestic, $3.00; Foreign, $3.30; Canada, $3.15—U. S. Currency.

SUBSCRIPTIONS, ADVERTISEMENTS: All communications and remittances to be addressed to **ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia 3, Pa.**

ADVERTISING RATES: Full width of page. Payments in advance.

	1 Inch	2 Inches	3 Inches	6 Inches
One Issue	$1.00	$ 1.90	$ 2.75	$ 4.80
Five Issues	4.50	8.50	12.00	21.00
Ten Issues	8.00	15.00	21.00	36.00

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

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ENTOMOLOGICAL NEWS

VOL. LVIII FEBRUARY, 1947 No. 2

Notes on North American Enodias (Lepidoptera)

By RALPH L. CHERMOCK, Ithaca, N. Y.

The genus *Enodia* was erected by Hübner in 1818 in his "Verzeichnis Bekannter Schmettlinge," page 61, in which he included three species: *andromacha, dejeanira* and *hyperanthe*. Scudder, in 1872 in the Fourth Annual Report of the Peabody Academy of Science, selected *Enodia andromacha* Hübner as the genotype. *Andromacha* Hübner, 1818 is a synonym of *Papilio portlandia* Fabricius, 1781. On page 56 of the above work, Hübner proposed the generic name *Lethe,* citing only one species *Papilio europa* which becomes the genotype by monotypy. Scudder, in 1875 in the Bull. Buff. Soc. Nat. Sci., vol. II, p. 242, erected the genus *Satyrodes* with *Papilio eurydice* Linnaeus-Johanssen as the genotype.

The various members of the above genera will vary with regard to the shape of the wings, the presence and character of androconial patches, shape of the hindwing, and in maculation. However, none of these characters are limited to any one genus, thereby being generically diagnostic. Careful venational studies have not revealed any differences of generic rank. In all three of the genotypes, the primaries are almost identical: the subcostal is swollen at the base; the cell is half the length of the wing and broad; R_1 and R_2 arise before the end of the cell and extend to the costal margin; R_{3-5} originates at the end of the cell with R_3 intersecting the costal margin, R_4 the apex, and R_5 the outer margin; the upper discocellular is short and straight, the middle is curved basally, the lower is straight, over twice as long as the middle and meeting M_3 beyond its intersection with Cu_1. The venations of the secondaries of the three genotypes are also identical except for the following characters: the cell is closed in

europa, open in *eurydice,* and closed by a very thin vein in *portlandia;* the humeral vein in *europa* is curved, in *portlandia* is short and angled, and in *eurydice* is very short and clubbed at the end. The rounded wing form of *eurydice* is also found in such species of *Lethe* as *epimenides* and *marginalis,* which, however, lack the distinctive form of valve of the former.

In genitalic studies of the three genotypes, the basic structures were identical. *Europa* is distinctive because it lacks the pair of socii at the base of the uncus. The valves of *portlandia* and *europa* are both long, narrowed distally, broader basally; the valves of *eurydice* are proportionally shorter, broader, with a distinctive rounded appendage at the distal end. None of the differences observed were, in my opinion, of generic rank, although the absence of the socii in *europa* along with the differences in venation are probably deserving of subgeneric distinction.

The author proposes, therefore, that *Lethe,* which has page priority over *Enodia,* be retained as the generic name applying to the entire group; and also as a subgeneric name to include *europa* and its relatives. *Enodia* Hübner may be used as a subgeneric name to include the North American representatives of the genus along with a large percentage of old world members such as *titania, marginalis* and *kansa* which agree with *portlandia* in genitalic and venational structure. *Satyrodes* Scudder is to be considered as a synonym of *Enodia,* having no characters of sufficient value to separate it from that genus. The generic names *Oreas* Hübner, *Tanaoptera* Billberg, *Debis* Doubleday, and *Zophoessa* Doubleday are all synonymic to *Lethe* as is addequately explained by Hemming, 1934.[1] Moore divided this group into numerous small genera. In 1880, in his Lepidoptera of Ceylon, vol. 1, p. 18, he erected the genus *Hampha.* In 1881, on page 305 of the Trans. Ent. Soc. Lond. he proposed the genus *Tansima.* In volume 2 of his "Lepidoptera Indica," he erected the following genera: *Rangbia, Nemitis, Dionana, Sinchula* and *Kerrata.* All of these genera are based on superficial characters and can be considered only as synonyms.

[1] The Generic Names of the Holarctic Butterflies, pp. 30–32, Oxford University Press.

Austin H. Clark, in the Proc. of the U. S. Nat. Mus., vol. 83, No. 2983, 1936, summarized the genus *Enodia* in North America, and described two new subspecies. His limiting of the name *portlandia* to the southeastern sub-species, with *andromacha* Hübner and *androcardia* Hübner as synonyms, is perfectly valid and adequately detailed in his paper. His recognition of *creola* as a distinct species also agrees with my findings, for the two species have an overlapping distribution in Virginia and North Carolina, with no apparent interbreeding; and differ in their flight behavior. The genitalia of *portlandia* have more blunt terminations to the valves than are found in *creola* although extremely similar in all other respects. The distinctive androconial patches found on the forewings of the male *creola* are also diagnostic for that species, though they may vary in their development.

Doctor Clark also described two subspecies of *portlandia* in his paper, one from Sullivan County, New York which he called *anthedon*, the other from Ontario which he named *borealis*. Both of these are distinguished from typical *portlandia* by the absence of white on the lower surfaces, the row of ocelli on the underside of the forewings being straight, and the ocelli on the underside of the secondaries having circular instead of elongate pupils. His principal distinction between *anthedon* and *borealis* is based on the breadth of the dark band between the light line bordering the fourth and fifth spots and the submarginal light band below. In long series from Pennsylvania, New York, Illinois, Ontario, Manitoba and smaller series from Quebec, West Virginia, Ohio, Maine, Minnesota and Missouri, examples matching both of his subspecies are sufficiently abundant so that neither one is overwhelmingly the dominant form. Consequently, using page priority, the author selects the name *anthedon* to apply to the northern subspecies. Although the name *borealis* could be used to designate a slight form, it is preferable to sink the name into synonymy.

Linnaeus-Johanssen described *Papilio eurydice* in 1763 in Amoenites Academicae, vol. 6, p. 406, this name preceding *canthus* Linnaeus and others. In 1840, Gosse in the Canadian

Naturalist, p. 247, described *transmontana* from Compton, Quebec. This name has been used to distinguish northern specimens of *eurydice* as a subspecies, but after studying long series from throughout the range of distribution of the species, no constant character can be found to distinguish the populations. The relative pale color usually used as a diagnostic feature of *transmontana* does not always occur in the more northern specimens, and occurs far too frequently in the more southern examples. For this reason, I sink it into synonymy. F. H. Chermock, in 1927, described an aberration of this species from Port Hope, Ontario, characterized by the absence of spots on the upper side of the primaries. Field, in 1936, described a "form" of this species from Bloomfield, Michigan, having a very pale color, almost albinic in character. Feeling that there is no need for names below the subspecific level which are used to designate the extremes of the normal range of variation of any given population, I sink these into synonymy.

Leussler, in vol. 27, p. 99 of the ENTOMOLOGICAL NEWS for 1916, described a race of *eurydice* from a small bog in Sarpy County, Nebraska, a few miles south of Omaha. It was characterized by its darker color, larger size and larger markings on the upperside of the wings. In all other respects it was the same as typical *eurydice*. Apparently, this insect was restricted to a very small area, and has since become extinct. In examining cotypes and topotypes of *fumosus*, the author finds that actually the specimens described occurred only as a form of the typical species in the type locality along with the normal form.

The variation of *Lethe eurydice* is extremely interesting. They usually are restricted to swampy or boggy areas where their foodplant occurs, and because of their relatively weak flight habits, rarely leave these areas. Consequently, two bogs, which may be only a mile apart, will have little or no interchange of populations of this species. This affords perfect conditions for microevolution, and frequently light forms may develop in one bog, while in a nearby swampy area, darker colored forms may predominate. This variation may be duplicated in numerous local populations over a fairly large area, each of which has its own

distinctive characteristics. Essentially, however, they represent local isolations of a potentially variable species. As such, the author feels that these local isolated populations are deserving of no subspecific designation. *Fumosus* is an example of a restricted population of this type, and consequently the author feels that it should be considered as a synonym of *eurydice*.

On the other hand, if the local populations of an area covering thousands of square miles collectively possess diagnostic characters which separate them from relatives inhabiting an adjacent large geographical area, we have true subspecies developed. In the zone where the ranges overlap, we may of course find an overlapping of the diagnostic features of both, or may find neighboring isolated populations of one or the other subspecies. However, considering the overall geographic distribution, the author feels that it is valid to use the term subspecies to designate the inhabitants of these large areas. For this reason, he proposes subspecific rank for members of the species *eurydice* inhabiting the southern Appalachians.

Lethe (Enodia) eurydice appalachia, new subspecies

Male. Length of primary (measured from the base of the wing to the apex) 23–27 mm., average length 25.5 mm.; longer than in *eurydice eurydice*. Genitalia cannot be distinguished from the typical form. Upper Surface: ground color of a darker brown than that of the typical form, with very slight contrast between the limbal and discal areas of the primaries; the row of ocelli reduced in size and tend to be obscured by the general dark ground color of the primaries; there is no contrast between the limbal and discal areas of the secondaries, and the ocelli are larger than in the typical subspecies. The color, maculation and length of wing are comparable to that of *fumosus* Leussler. Lower surface: darker brown than in the typical form, homogeneous, with a slight purplish cast and lacking the yellow which occurs so frequently in *eurydice eurydice*. Ocelli large, filling the intravenous space, white pupilled, ringed with yellow, then a ring of the ground color, and finally a ring of light grayish-white as in the typical form. The most diagnostic feature is the

structure of the dark brown band between the discal and limbal areas; in typical *eurydice* this band is strongly serrate on the primaries, in *Appalachia* it is consistently straight, very slightly curved, and slightly irregular between Cu_2 and A_2; on the secondaries this band is smoothly sinuate, having none of the sharp pointed irregularities usually found in the typical subspecies.

Female. Wing expanse 25 to 27 mm., average 25.5 mm.; exhibits all of the characteristics of the male but has more contrast between the limbal and discal areas of the upper surface.

Holotype: male, Conestee Falls, near Brevard, NORTH CAROLINA, June 28, 1941 (R. Chermock). *Allotype:* female, Conestee Falls, N. C., June 27, 1941 (R. Chermock). *Paratypes:* R. L. Chermock Collection: 4 males, Terra Alta, WEST VIRGINIA, July 2–3, 1939 (R. Chermock); 4 males, Conestee Falls, N. C., June 27–28, 1941 (R. Chermock). F. H. Chermock Collection: 1 male, Terra Alta, W. Va., July 2, 1939 (R. Chermock); 4 males, Conestee Falls, N. C., June 26 to July 8, 1937 (W. Sweadner); 1 male, Batesville, SOUTH CAROLINA, (F. H. Chermock). Don B. Stallings Collection: 1 male, Conestee Falls, N. C., June 29, 1941 (R. Chermock). American Museum of Natural History Collection: 1 male, Coosawhatchie, S. C., July 26, 1938 (R. B. Dominick); 2 males, Monticello, FLORIDA, Oct. 4–8, 1914. U. S. National Museum Collection: 1 female labelled Washington, D. C., July 17, 1929 (figured on Plate 1, figures 3 and 4, Bulletin 157 of the U. S. National Museum, as being from Beltsville, Md.); 2 males, Washington, D. C., July 4, 1930 and July 29, 1929; 1 male, Beltsville, Maryland, July 15, 1928; 4 males and 1 female, Little Meadows, Giles Co., Virginia, July 25–26, 1940 (L. G. Carr); 1 female, Speedwell, Va., August 11, 1938 (A. H. Clark); 1 female, Glen Carlyn, Va., August 12 (A. N. Caudell); 1 female, Vienna, Va., July 19, 1936 (A. H. Clark); 1 male, Burkes Garden, Va., July 19, 1936; 1 female, Longs Gap, Grayson Co., Va., August 11, 1938 (A. H. Clark).

This new subspecies ranges from the mountains of West Virginia, south through the Appalachian Mountains into Florida. Dr. Austin H. Clark, in correspondence, informs me that

he has collected specimens of *appalachia* in the mountains of southwestern Virginia. In addition, he mentions it occurring in the coastal swamps of eastern Virginia and South Carolina. Apparently, *appalachia* is not found on the Piedmont, except in the vicinity of Washington, D. C. One of these specimens is figured by Dr. Clark on plate 1, figs. 3–4 of his "Butterflies of the District of Columbia" collected in Beltsville, Md., and is unquestionably referable to the new subspecies.

In summarizing the above conclusions, the author presents the following checklist of the North American representatives of the genus *Lethe:*

Genus *Lethe* Hübner, 1818. Genotype: *Papilio europa* Fabricius, 1775.
Subgenus *Enodia* Hübner, 1818. Genotype: *Enodia andromacha* Hübner, 1818 (= *Papilio portlandia* Fabricius, 1781).
portlandia portlandia (Fabricius)
synonym *andromacha* (Hübner)
synonym *androcardia* (Hübner)
portlandia anthedon (Clark)
synonym *borealis* (Clark)
creola (Skinner)
eurydice eurydice (Linnaeus-Johanssen)
synonym *canthus* (Linnaeus)
synonym *cantheus* (Godart)
synonym *transmontana* (Gosse)
synonym *boisduvalii* (Harris)
synonym as aberration *boweri* (F. H. Chermock)
synonym as aberration *rawsoni* (Field)
synonym as field form *fumosus* (Leussler)
eurydice appalachia R. L. Chermock

I wish to thank Dr. C. D. Michener of the American Museum of Natural History; Mr. Don B. Stallings of Caldwell, Kansas; and Mr. F. H. Chermock of Butler, Pa., for the loan of material for study. I also wish to extend to Dr. Austin H. Clark of the U. S. National Museum and Dr. W. T. M. Forbes of Cornell University my appreciation for their many helpful suggestions.

Texas Lepidoptera (With Description of a New Subspecies)

By Don B. Stallings and J. R. Turner, Caldwell, Kansas

Since our first paper * on Texas Lepidoptera, H. A. Freeman has continued to make remarkable catches of butterflies around Pharr, Texas. In addition, we have done considerable collecting during the past year in Texas, up and down its southern border.

Again we wish to thank Dr. Wm. P. Comstock of the American Museum of Natural History for his valued assistance in checking determinations.

Freeman agrees with us that the Rio Grande Valley area around Pharr is tropical in nature. Preliminary work on this problem by Robt. Whittaker confirms our position.

The following list covers only the more interesting and unusual catches:

Papilio lycophron pallas Gray. A single female of this subspecies was caught by Freeman with the assistance of Kent Wilson near Brownsville, Texas on August 20th, 1946. We have reason to believe that this subspecies is native to the United States, even though this is the first recorded specimen. While collecting this subspecies near Victoria, Mexico, we recall that it was associated with *Papilio cresphontes* Cram. and *Papilio ornythion* Bdv. The males of *pallas, cresphontes* and *ornythion* look a good deal alike in flight and it is probable that males of this subspecies seen in flight in the U. S. have been mistaken for *cresphontes* or *ornythion.*

Melitaea chinatiensis Tinkham. We collected a small series of this newly described species ** north of Terlingua, Texas, at an elevation of 3800 feet on Oct. 29th, 1945. Our specimens were flying with *Melitaea definita* Aaron. On June 2nd, 1946, we caught a single specimen north of the Davis Mts., near Toyahvale, Texas, at an elevation of 3800 feet. This specimen was flying in association with *Phyciodes picta* Edw.

* Ent. News 46 (2): 44–49. Feb., 1946.

** Can. Ent., vol. 76 (1): 11–18, Jan., 1944.

Timetes chiron Fabr. We caught a single ragged specimen of this species near Del Rio, Texas, Oct. 25th, 1945.

Heterochroa eulalia D. & H. We collected several specimens of this species in the Davis Mts. of Texas on May 28th, 1946. The females were laying eggs on the oak trees in the area. This is the latest name applicable to what has heretofore been called *bredowi* Gey. and sometimes has been referred to as *Heterochroa bredowi californica* ** Butler.

Asterocampa leilia cocles Lintner. We have collected a series of this species around Del Rio and Laredo, Texas, and at Monterrey, Mexico. Freeman has collected a pair at Pharr. We do not agree with Barnes and McDunnough * in treating Texas specimens of *leilia* the same as Arizona *leilia*. In addition to the differences in ground color (Texas specimens are darker) mentioned by Barnes and McDunnough, we find a further distinct difference between the two subspecies which instantly separates them. On the lower surfaces of the secondaries of Ariz. *leilia* are 7 eye spots in the submarginal area. These eye spots are black, banded with yellow and pupilled with blue. On Texas specimens, we find the 7 eye spots in the submarginal area and in addition an eighth eye spot in the anal area, similar to the other 7 eye spots. Type locality of *cocles* is six miles above Hildago, Texas, which is a few miles from Pharr, Texas. *Leilia* is a distinct species from *Asterocampa celtis*. Some confusion has resulted from the fact that Holland pictures *A. celtis antonio* and calls it *leilia*. Seitz evidently copied Holland's figure. *Leilia* is easily distinguished from *celtis antonio,* which it sometimes flies with, by two characters. On the upper portion of the upper surface of the primaries of *antonio* are two black bars the innermost of which is composed of two spots. In *leilia,* both bars are brown and are solid. In *leilia,* the eye spots on the undersurfaces of the forewing are pupilled with blue while in *antonio* they are pupilled with white. We find these characters constant, except that females of *antonio* sometimes have the bars brown.

* Contributions to the Natural History of the Lepidoptera of North America, Vol. II, No. 3, Page 99.

Asterocampa clyton louisa new subspecies

Freeman has collected a good series of this subspecies around Pharr. At first we treated these specimens as belonging to the subspecies *subpallida* B. & M. described from Arizona, although they did not conform too well to the pictures of the type of *subpallida*. Recently Lowell Hulbirt and Ralph Chermock loaned us their series of Arizona *subpallida* and it immediately became evident that the Pharr, Texas specimens were not *subpallida* nor did they belong to the Texas subspecies *texana* Skinner. In addition to the specimens collected by Freeman, we have a single specimen from Victoria, Mexico that is like the Pharr specimens. We feel that these subtropical specimens merit subspecific status.

This subspecies varies from the subspecies *texana* and *subpallida* by the apex of the upper surface of the primaries having a black ground color rather than the usual brown or purplish brown, the black being much heavier in the males. In this respect this subspecies resembles the species *Asterocampa celtis* B. & L. rather than *clyton*. The brown ground color of the remainder of the primaries and all of the secondaries is a dead yellow brown and not the bright color of *subpallida* and *texana*. As a general result the females of *louisa* have a washed out appearance. The light spots on the upper surfaces of the primaries of *louisa* are white (again like *celtis*) in contrast to the creamy coloring of *texana* and *subpallida*. On the undersurfaces the males of *louisa* resemble *texana* and the females resemble *subpallida*. This is not to be considered as an intergrade between *subpallida* and *texana*, due to the black apex of the forewings, above and the white of the spots on the forewings, above.

Named in honor of Mr. Freeman's wife, Louise.

Holotype: Male. Expanse 44 mm. Pharr, TEXAS, Oct. 22, 1945. *Allotype:* Female. Expanse 62.5 mm. Pharr, TEXAS, Oct. 14, 1944. *Paratypes:* 13 males and 5 females. Collected by Freeman at Pharr, Texas: 9/29/44, 10/14/44, 3/10/45, 3/18/45, 3/21/45, 9/22/45 and 11/5/45 and 1 male collected at Victoria, MEXICO, Oct. 18th, 1940 by R. L. Turner.

Types retained by the authors for the present. Paratypes divided between Freeman and the author's collection.

Thecla cestri Reak. Freeman caught a single specimen at Pharr on March 25th, 1945. This species has not been recorded previously from the U. S. Pictured by G. & S., Plate 58, Fig. 12–13 and by Seitz at Plate 1451.

Thecla yojoa Reak. (*daraba* Hew.). This hairstreak is also new to North American check lists. One male specimen caught by Freeman at Pharr, Texas on Dec. 12th, 1945. Seitz gives a fairly good figure on Plate 159k. See, also, "Diurnal Lepidoptera" by Hewitson, Vol. 2, Plate 36, Fig. 89 and Plate 62, Fig. 424–425–426.

Thecla spurina Hew. Freeman caught a female specimen of this new record at Pharr on Nov. 25th, 1945. Our small series of this species from Mexico shows considerable individual and seasonal variation. Seitz figures this species at Plate 152 h & i. Seitz lists the following names as synonyms: *Stagira* Hew., *volana* Hew., *timaea* Hew., *lydia* Ky. For further figures see Diurnal Lepidoptera by Hewitson, Vol. 2, Plate 51, Fig. 268–9; Plate 48, Fig. 225–6; Plate 43, Fig. 167, Plate 39, Fig. 120–1–2–3.

Strymon clytie form hiem. *maevia* G. & S. The first winter form of *clytie* that we saw appeared so different from the summer form that we first considered it a separate species. It was only after we had re-studied *Strymon leda* Edw. and its winter form *ines* Edw. that we realized that *clytie* also had a well-defined winter form. A study of the figure of *maevia* by G. & S. at Plate 58, Figs. 3 and 4, convinced us that this represented the winter form of *clytie;* hence we apply the name *maevia.* Many of the specimens caught by Freeman at Pharr, Tex. during Oct., Nov., Dec. and March are marked even more extremely than the figures of G. & S. *Maevia* generally may be distinguished from *clytie* in the same manner that *ines* is distinguished from *leda,* i.e., more and darker blue above, darker ground color below with the markings more heavily defined.

Strymon pastor B. & D. Considerable confusion has resulted with regard to this species, due to the fact that most authors (including Holland) have figured *longula* Hew. and called it *pastor. Pastor* belongs to the tailed *amyntor* (Cramer) group

of hair-streaks. Freeman has collected a small series of what we now consider to be *pastor* at Brownsville during May and at Pharr during October. Our Mexican specimens of this group indicate that much work is needed in this group. This must wait until more specimens are available.

Strymon simaethis sarita Skin. Further study of the Texas specimens of *simaethis* convinces us that the name *sarita* * Skin. should be applied to the Texas and North Mexican specimens. *Sarita* was described by Skinner from a single specimen caught in Comal County, Texas. Typical *simaethis* is found in the Antilles, type locality being St. Kitts, B. W. I. See *Annals New York Academy of Sciences,* Vol. XLV, Art. 2 (Lycaenidae of the Antilles) by Comstock and Huntington, page 73 and Plate 1, Fig. 6.

The mainland race of Texas and Northern Mexico is distinguished chiefly from typical *simaethis* on the undersurfaces. On the forewing the lower ¼ of the silver-white line bends inward on *simaethis* and on *sarita* the line bulges outward. On the secondaries the silver-white line of *sarita* is fairly straight across the wing until the V is formed at the bottom. In *simaethis* and the Jamaica subspecies *jago* C. & H. this line is very irregular. This line on the secondaries of *sarita* starts at the top of the wing at about the same place as the line does in *jago,* thus differing from typical *simaethis* in that respect. All of our Texas and Mexican specimens (with one exception) show the "swollen" area in the middle of the silver-white line on the undersurfaces of the secondaries mentioned by Skinner. This "swelling" is the reason this line in *sarita* appears straight in constrast to the irregular line in *simaethis* and *jago* since the swelling fills in most of the angles.

Strymon alcestis oslari Dyar. We collected a small series of this subspecies in the Davis Mts. of Texas at an elevation of 4800 feet on May 28th and 29th, 1946. Freeman had previously caught a specimen in the same area in 1942. *Oslari* is distinguished from *alcestis* by the lighter ground color both above and below. We do not know of *oslari* being previously recorded from Texas.

* For Original Description see: ENT. NEWS 6 (4): 112. April, 1895.

Adopaeoides simplex Feld. A single specimen of this species was caught by Don B. Stallings Jr. in the Davis Mts. of Texas (near Ft. Davis) on May 28th, 1946 at an elevation of 4700 feet. This genus and species are new to North American check lists. This species is well figured in G. & S., Plate 92, Figs. 30–33. Seitz gives rather poor figures on Plate 183d. This species resembles our *Thymelicus lineola* Ochs, which was imported from Europe during the last century. We are indebted to Mr. Freeman for the final determination.

Pseudohazis chinatiensis Tinkham. We collected a small series of this species near Dryden, Texas on Oct. 26th, 1946. This colorful moth was flying in association with *Megathymus mariae* B. & B.

On Some Millipeds from Micronesia

By Ralph V. Chamberlin, University of Utah

The new diplopods here described are represented by specimens collected on several islands of Micronesia by Dr. H. K. Towns in 1946 (May–Sept.). Also represented are the tropicopolitan milliped *Orthomorpha coarctata* (Saussure) and the centiped *Scolopendra subspinipes* Leach. Types of the new forms are for the present retained by the author.

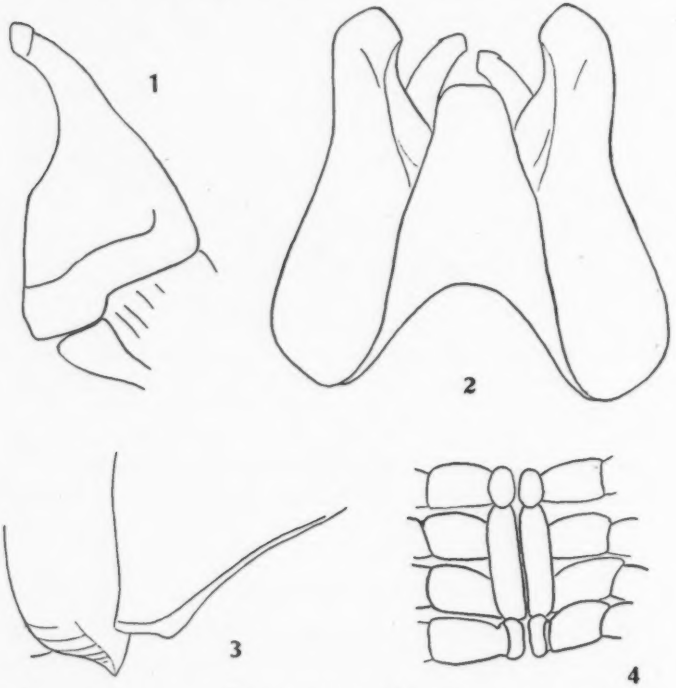
SPIROBOLIDAE

Genus **TRUCOBOLUS,** new

A genus of the Spirobolidae in which the completely separated posterior gonopods show no sign of subdivision and are distally in the form of moderately narrow blades which are distally blunt. Anterior gonopods distally entire, not furcate. Sternite of anterior gonopods a well developed plate. Repugnatorial pores upon the prozonites, lying slightly in front of the posterior sulcus. Labral foveolae 2 + 2. In the male the coxae of the third and fourth legs with short processes, those of the fifth with long, forwardly-directed processes.

GENEROTYPE—*Trucobolus townesi,* new species

Superficially distinguished from *Spirobolus* in having the supralabral foveolae 2 + 2 instead of 4 + 4, while in the male it is very distinct in the form of both posterior and anterior gonopods as well as in the coxal processes of the anterior legs.

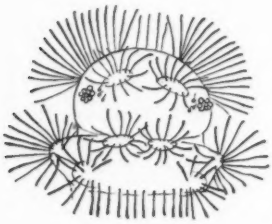


EXPLANATION OF FIGURES

1. *Trucobolus townesi,* n. sp. Left posterior gonopod, caudal view. 2. The same, anterior gonopods, cephalic aspect. 3. The same, lower end of collum and of second tergite, viewed from right side. 4. The same, coxae and process of third to sixth pairs of legs of male, ventral aspect. 5. *Apoxenus floricolens,* n. sp. Anterior end, dorsal view. 6. The same, posterior segments, dorsal view. 7. *Polyconoceras lissior,* n. sp. Scobina. 8. *Trigoniulus utagalus,* n. sp. Anterior gonopods, cephalic aspect. 9. The same, left posterior gonopod, caudal aspect. 10. The same, right posterior gonopod, distal aspect.

Trucobolus townesi, new species

In color strongly annulate, the metazonites varying from light yellowish brown to a deeper orange color, while the exposed portion of the prozonites is dark brown to black.



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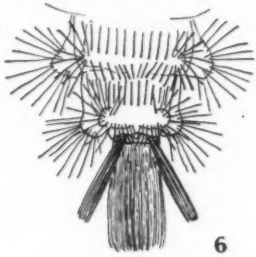

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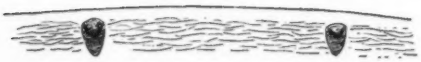

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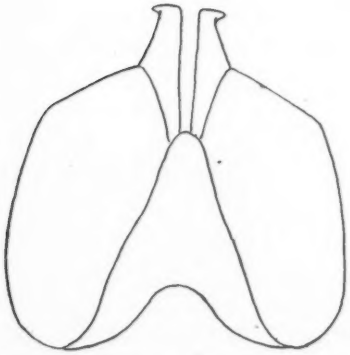

8

9

The supralabral foveolae 2 + 2, the two on each side widely separated, well impressed. Antennae comparatively short and stout, distally somewhat compressed, the cross-section of the

sixth article elliptical. Eyes large, convex behind but presenting a subrectangular angle adjacent to antennal socket. Ocelli in six subvertical curved series, e.g., 4, 6, 7, 9, 9, 10.

Collum strongly narrowed down each side, the lower ends of the form shown in the figure. The lower anterior border up to level of the eye set off by a submarginal sulcus, no other sulci being evident.

On the ordinary somites the sulcus is fine but distinct throughout, this excurved opposite the slightly removed pore. Surface smooth, with longitudinal striae evident only beneath.

Last tergite rounded caudally, a little surpassed by the anal valves. Valves with mesal borders strongly compressed and elevated, the elevated border set off by a shallow depression or furrow.

In the male the fourth legs and especially their claws are reduced in size. The coxal processes of the fifth legs long, subcylindrical, abruptly bent forward at base and contiguous with each other, lying against the lower ends of the processes of the fourth legs and with their distal ends fitting against the posterior sides of the processes of the third legs (fig. 4).

The anterior and posterior gonopods are of the forms represented in figures 1, 2 and 3.

Number of segments mostly 49–51. Diameter, 3.4 mm.

Locality.—Micronesia: Turk Atoll at Fefan. Eighteen specimens representing both sexes were taken by Henry K. Townes on May 27, 1946.

RHINOCRICIDAE

Polyconoceras lissior, new species

Exposed area of prozonites mostly dark brown, nearly chocolate colored but the sides especially yellowish or olive yellow anteriorly and over covered portion; metazonites dark reddish. Legs dark purple.

Head smooth and shining. Median longitudinal sulcus interrupted at level of antennal sockets. Eyes about two and a half times their diameter apart; ocelli in 8 longitudinal series, e.g., 3, 5, 5, 6, 7, 7, 6, 5. Clypeal foveolae 2 +2 . Sensory cones of antennae numerous.

Collum narrowly margined with a fine sulcus about lower end and up to level of eye, otherwise smooth and shining.

Ordinary tergites very smooth and shining, showing no impressed sulcus or furrow across dorsum or down the sides but a shallow furrow in its place below; no longitudinal striae except beneath. Scobina small, entire area depressed but anterior portion deep, pit-like and of semicircular form, the striae of posterior portion very fine; widely separated; disappearing at about 29th segment. (See fig. 7.)

Last tergite with a transverse depression or furrow setting off the triangular caudal portion; exceeded by the mesally strongly compressed anal valves.

Number of segments, 56. Length, 100 mm.; width, 9.9 mm.

Locality.—Micronesia: Palau group, Arakabesan. One female taken by Townes July 18, 1946 in tree crotch in damp native forest.

"This specimen exuded a copious brown caustic liquid when disturbed. The liquid had a very caustic odor, something like HCN. On the skin it immediately made a brown stain which soon turned to a purplish brown."

While the male is unknown, I believe this species can be recognized from the peculiarities of the scobina and the absence of segmental sutural sulci and other sculpturing on the tergites.

TRIGONIULIDAE

Trigoniulus utagalus, new species

Color dark brown to nearly black in front of posterior sulcus on each segment, the color behind this sulcus light brown or yellowish but the darker often spreading more or less over this lighter band above. Legs light brown, somtimes more or less ferruginous. Head light brown or yellowish except over vertex.

Frons and clypeus crossed by the usual deep median sulcus. Clypeal foveolae 2 + 2. Eyes large, about once and a half their diameter apart.

Collum extending below to about the same level as the second tergite.

Segments a little constricted along the sharply defined principal sulcus, the constriction more marked on the sides and below than dorsally. Pore on the prozonite close to the sulcus which is but little curved at its level. Striae on prozonites

present to level of pore, those on metazonite not extending but part way up the side.

Last tergite without cross furrow, rounded behind and exceeded by the evenly inflated valves.

The features of the gonopods, by which the species is best distinguished, are shown in figures 8, 9, and 10.

Number of segments, 45. Diameter, up to 3 mm.

Locality.—Palm Group: Woleai Atoll, Utagal. About a dozen specimens taken July 28, 1946, by Henry E. Townes, who writes that the milliped is abundant on the atoll. The types are female and partly immature specimens with the exception of the holotype, which is an adult male.

POLYXENIDAE

Genus **APOXENUS**, new

Agreeing in most features with *Monographis,* but differing in having the setae of the caudal segment in three pencils, the principal one composed of fine silky hairs part of which are hooked, while the two smaller ones are composed of long, much coarser, setae similar to those of the pleural and dorsal whorls of the other segments. In addition there is the usual series of shorter setae along the caudal margin of the tergite.

GENEROTYPE—*Apoxenus floriçolens,* new species.

Apoxenus micronesius, new species

Yellow above with a dark purple mark along caudal border of each segment each side of middle and down the sides, this band joined by a similarly colored mark at right angles to it on each side of tergite. The setae also more or less partaking of this color excepting their tips. Finer purple markings on the venter. Legs and antennae also tinged with purple.

Body composed of head and eleven segments. Pairs of legs, 13. The setae of all segments of one type excepting for variation in length and no true scales present (figs. 5, 6). In addition to the whorls of setae on the nine pairs of pleural processes, the setae at each side of each tergite are arranged in a group or whorl, the setae between these two dorsal whorls being shorter and more or less in transverse series.

Last segment with a caudally directed single brush of long,

densely set setae and a pair of smaller brushes of setae arising on dorsal side and directed caudodorsad (fig. 6).

The penes of the male are very thick, proportionately short conical bodies.

Length (including caudal setae), 3 mm.

Locality.—Micronesia: Ailinglapalap Atoll, Bigatyelang Is. Five specimens, including two adult males, taken Sept. 25, 1946, by H. E. Townes "between calyx and radicle of Bruguiera while still on tree." The five specimens were taken from one calyx.

A New Macrosiphum from Chrysothamnus

By George F. Knowlton, Utah State Agricultural College, Logan

The following report deals with an apparently undescribed species of aphid of the genus *Macrosiphum*. In addition, distribution records are given for a few species of aphids collected from rabbitbrush.

Macrosiphum aaroni n. sp.

Alate vivipara: Color black to blackish; antennae and most of legs black or at least dusky; head and antennal I paler than thoracic lobes and balance of antennae; antennal tubercles moderately prominent; ocular tubercles present; body 2.63 mm. long; antennae about 3.67 mm. long; antennal III, .85 to .89 mm. with 34 to 40 sensoria; IV, .71 to .75, without sensoria; V, .65 to .68; VI, .15 plus 1.01 mm. long; rostrum slightly exceeds second coxae; rostral IV + V slenderly obtuse, .173 mm. long; wing venation normal, media of front wing twice branched; blackish patches on lateral margins of abdomen; prominent abdominal hairs have blackish area at base; cornicles black, largely cylindrical, .71 mm. long with distal approximately .16 mm. reticulated; cauda pale, .522 mm. long, very slightly constricted beyond base, with 7 or 8 hairs on each side; anal plate pale and broadly rounded.

Collection: Taken on rabbitbrush, *Chrysothamnus nauseosus* at Honeyville, Utah, September 13, 1927 by G. F. Knowlton. Type in the collection of the writer.

Taxonomy: Macrosiphum aaroni n. sp. resembles *Macrosiphum kosacaudis* (Knlt.), from which it differs in darker general color, pale cauda, more rounded anal plate and black patches on sides of abdominal segments.

Records from Rabbitbrush

Capitophorus chlorophainus K.-S. on *Chrysothamnus nauseosus* var. *lanceolatus,* Beaver Canyon, Utah, July 29, 1945.

C. elongatus Knlt. on *Chrysothamnus greeni* at Leeds, Utah, August 1942; Antelope Valley, Nevada, July 1926; on *C. parryi* var. *typicus* at Delta, Utah, July 1945; on *C. parryi,* Wildcat Canyon, Utah, July 11, 1945.

C. gregarius Knlt. on *Chrysothamnus nauseosus,* 12 mi. northwest of Reno, Nevada, and Mono, California, July 23, 1944 (Knowlton); Y–Mt., east of Provo, Utah, July 12, 1945 (C. L. Hayward).

C. magnautensis K.-S. on *Chrysothamnus viscidiflorus* var. *linifolius,* Ft. Duchesne, Utah, July 14, 1927; Myton, Utah, August 15, 1942; on *C. viscidiflorus* at Sisters, Oregon, August 24, 1944.

C. oestlundi Knlt. on *Chrysothamnus viscidiflorus* var. *elegans,* La Point, Utah, July 25, 1945; on *C. nauseosus* at Declo, Idaho, June 9, 1935; Winnemucca, Nevada, July 24, 1944; on *C. greeni,* Leeds, Utah, August 9, 1936; Ontario, Oregon, June 17, 1939; on *C. nauseosus* at Buchanan, Oregon, August 25, 1944; and Spokane, Washington, August 9, 1944.

C. palmerae Knlt. on *Chrysothamnus nauseosus* at Truckee, Mono and Boca, California, July 23, 1944; at 8, 12 and 13 miles northwest of Reno, Nevada, July 23, 1944, on *C. nauseosus* var. *gnaphalodes.*

C. utensus P.-K. on *Chrysothamnus viscidiflorus* var. *stenophyllus,* Trout Creek, Utah, August 6, 1945; on *C. viscidiflorus* at Ontario and Pleasant Valley, Oregon, June 17, 1939; *C. viscidiflorus* var. *linifolius,* Bryce Canyon, Utah, September 1939.

C. xerozoous K.-S. on *Chrysothamnus greeni,* Fillmore, Utah, July 9, 1942; on *C. wyomingensis,* Logan Canyon, Utah, September 23, 1934 (T. O. Thatcher); *C. nauseosus,* Uinta, Utah, July 18, 1937.

Obituary

Mr. Samuel Francis Aaron, usually known to entomologists as S. Frank Aaron, custodian of insects at the Academy of Natural Sciences of Philadelphia 1884–85, died at Pipersville, Bucks County, Pennsylvania, on January 15, 1947. He was born at Mt. Holly, New Jersey, March 5, 1862, and is known for his published work on Psocidae, Chrysididae and popular articles on natural history in many journals. We hope to publish a more extended account of his life in a later number of the NEWS.

Notes and News in Entomology

Under this heading we present, from time to time, notes, news, and comments. Contributions from readers are earnestly solicited and will be acknowledged when used.

Revision of Australian Locusts.—At the request of the Council for Scientific and Industrial Research of the Commonwealth of Australia, Mr. James A. G. Rehn, Curator of Insects of the Academy of Natural Sciences of Philadelphia, is now engaged in preparing for publication by that body, a systematic analysis of the locusts (Acridoidea) of Australia and Tasmania. The extensive locust collections which have been assembled at Canberra, through the energy of Dr. K. H. L. Key, Senior Entomologist of the Council, are being sent in sections to Mr. Rehn for study, and the preparation of a revision of the Australian forms of these important insects is already well under way. Certain series of these insects belonging to a number of American institutions have also been made available for use in this connection. In order to make this study as fully comprehensive and as basic as possible Mr. Rehn would appreciate the opportunity to study at this time any considerable series of Australian representatives of these insects which may exist in other collections, both institutional or private. Mr. Rehn would be happy to hear from any entomologists who may be in a position to aid in this work by the loan of such relevant collections.

As the material which is being made available for examination contains types and paratypes of many species described from Australia in the past half century, the opportunity for physical comparison of other representations with these is one seldom presented.

Current Entomological Literature

COMPILED BY CHARLES HODGE IV, RAYMOND Q. BLISS, EDWIN T. MOUL, MAURICE E. PHILLIPS AND JOHN W. H. REHN AND HENRY K. TOWNES, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Beamer, Lucy—I'll tell you how. [43] 19: 127–29. **Beaumont, B. F.**—Fabre's "Souvenirs Entomologiques" with references to translations of this and other Fabre literature in English. [28] 83: 4–8. **Chagnon, G.**—Les insectes de la Niege. [55] 73: 436–37. **Fennah, R. G.**—On the formation of species and genera in the insect fauna of the Lesser Antillean Archipelago. [68] 21: 73–80. **Knowlton and Nye**—Some insect food of the sage sparrow. [43] 19: 139. **Lewis, H. L.**—Priority and its limitation. [28] 83: 16–17. **Peterson, A.**—Laboratory tests showing the effect of DDT on several important parisitic insects. [58] 46: 323–26. **Salmon, J. T.**—Portable apparatus for the extraction from leaf mould of Collembola and other minute organisms. [Dominion Mus. Records in Ent., Wellington, N. Z.] 1: 13–18, ill. **Shwanwitsch, B. N.**—On the system of Pterygota insects. [22] 52: 185–88. **Swezey, O. H.**—Insects of Guam II. [B. P. Bishop Mus. Bull.] 189: 1–237. **Tulloch, G. S.**—DDT—a new weapon in insect control. [18] 41: 162–63.

ANATOMY, PHYSIOLOGY, MEDICAL—Beament, J. W. L.—Formation and structure of the chorion of the egg in an hemipteran, Rhodnius prolixus. [74] 87: 393–439, ill. **Emden, F. I.**—Egg-bursters in some more families of polyphagous beetles and some general remarks on egg-bursters. [68] 21: 89–97. **Emme, A. M.**—Removal of embryonic diapause in Bombyx mori L. by applying sublethal thermal treatment. [22] 52: 645–48. **Graziansky, V. I.**—Non-hereditary variation in Drosophila melanogaster as influenced by density of larval population. [22] 52: 73–76. **Iljiskaya, M. I.**—The mechanism of insecticidal action and the permeability of the cuticle of insects. [22] 51: 557–60. **Lombardini, G.**—Contributo alla conoscenza della morfologia dei Demodicidae. [106] 28: 89–102, ill. 1942. **Ludvigh, E.**—Visibility of the deer fly in flight. [80] 105: 176–77. **Mer, Birnbaum and Aioub**—The attraction of mosquitoes by human beings. [61] 38: 1–9. **Pogossianz, H. E.**—On the problem of the so-called tumours in Drosophila. [22] 52: 255–58. **Power, M. E.**—An experimental study of the neurogenetic relationship between optic and antennal sensory areas in the brain of Drosophila melanogaster. [41] 103: 424–61, ill. **Pryor, Russell and Todd**—Protocatechnic acid, the substance responsible for the hardening of the cockroach ootheca. [Biochemical Jour.] 40: 627–28. **Schmieder and Whiting**—Reproductive economy in the chalcidoid wasp Melittobia. [Genetics] 32: 29–37. **Scott, T. L.**—Bee anatomy. [51] 6: 133–38, ill. **Shirck, F. H.**—Growth of the sugarbeet wireworm on different food plants. [37] 39: 648–51. **Slizynski, B. M.**—Production of structural changes in somatic chromosomes of Drosophila melanogaster. [53] 159: 66–67. **Tirelli, M.**—Egg and eye color in mutant silkworms. [42] 37: 377–83, ill. **Webb, J. E.**—Structure of the cuticle in Eomenacanthus stramineus (Mallophaga). [61] 38: 70–71, ill. **White, M. J. D.**—The cytology of the Cecidomyidae. III. The spermatogenesis of Taxomyia taxi. [44] 80: 1–24, ill. **Zivin, M. O.**—Effect of Acenaphthene upon non-disjunction of sex chromosomes in Drosophila melanogaster. [22] 52: 351–52; Influence of thymonucleic acid upon Drosophila melanogaster. [22] 52: 263–64.

ARACHNIDA AND MYRIOPODA—Baker, E. W.—Some Tydeidae (Acarina) from the fig tree (Ficus carica). [104] 4: 255–61 (*), ill. **Chamberlin and Ivie**—Spiders of Alaska. [Bull. Univ. Utah Biol. Series] 10: 5–103 (*), ill. **Jones, B.**—Impregnating polyvinyl alcohol with picric acid

for the simultaneous staining and permanent mounting of Acarina. [68] 21: 85–86. **Keifer, H. H.**—A review of N. A. economic Eriophyid mites. [37] 39: 563–70. **Milne, A.**—Ecology of the sheep tick, Ixodes ricinus. Aspects of activity, seasonal and diurnal; infestations of hill sheep. [61] 38: 27–50. **Schubart, O.**—Cambalopsis nordquisti Attems da Asia oriental, habitante do distrito federal do Brasil (Diplopoda). [111] 6: 395–406, (k), ill. **Schubart, O.**—Contribuicão ao conhecimento do genero Leptodesmus (Diplopoda). [7] 18: 165–209, ill. **Soares, H. E. M.**—Contribuicão ao estudo dos opilioes do estado do Rio de Janeiro (Gonyleptidae, Phalangodidae). [111] 6: 385–90 (k*), ill. **Turk, F. A.**—Studies of acari. IV. Review of lung mites of snakes. [61] 38: 17–26 (k*), ill. **Turk, F. A.**—On two new false scorpions of the genera Tridenctithonius and Microcreagris. [6] 13: 64–70. **Vazquez, L.**—Ixodes scuticrenatus, una especie nueva de Garrapata de Mexico (Ixodidae). [8] 17: 237–45, ill.

SMALLER ORDERS—Bishopp, F. C.—How to control fleas. [U. S. D. A. Leaflet] 152: 1–4, ill. **Busvire, J. R.**—On the pigmentation of the body louse Pediculus humanus L. [68] 21: 98–103. **Calvert, P. P.**—A new species of Brazilian Libellulinae and its nearest allies. [16] 69: 1–4, ill. **Clancy, D. W.**—The insect parasites of the Chrysopidae (Neuroptera). [91] 7: 403–96, ill. **Hickin, N. E.**—Larvae of the British Trichoptera. [88] 97: 187–212, ill. **Ricker, W. E.**—Some prairie stoneflies (Plecoptera). [87] 26: 3–8. **Webb, J. E.**—(See Anatomy.) **Wright, M.**—Notes on nymphs of the dragonfly genus Helocordulia Needham. [58] 46: 337–39 (k).

ORTHOPTERA—Michelmore, A. P. C.—Habits and control of the red locust in outbreak areas and elsewhere. [19] 37: 331–79. **Pryor, Russell and Todd**—(See under Anatomy.) **Roberts, H. R.**—Melanoplus plebejus, including 2 new subspecies. [109] 188: 1–6, ill.

HEMIPTERA—Beament, J. W. L.—(See under Anatomy.) **Beamer, R. H.**—A new species of Stenocranus and notes on a Bakerella (Delphacinae). [43] 19: 137–38, ill.; Some new species of Delphacodes (Delphacinae). [43] 19: 139–44. **Black and Oman**—Parthenogenesis in a leafhopper, Agallia quadripunctata (Cicadellid). [65] 49: 19–20. **Caldwell, J. S.**—New Acanaloniidae from Mexico. [18] 41: 164–65. **Callan, E. McC.**—Cotton stainers (Dysdercus spp.) in the West Indies. [19] 37: 389–91. **China, W. E.**

—New Cryptostemmalidae from British West Indies. [69] 15: 148–54. **Doering and Shepherd**—Some new species of the genus Mistharnophantia, Kirkaldy (Fulgorid). [43] 19: 111–27, ill. **Egbert, A. M.**—A new corixid from Georgia. [43] 19: 133–35, ill. **Hsiao, T-Y**—The genus Eccritotarsus with descriptions of a new genus and two species (Mirid). [65] 49: 59–62; A new genus and species of Miridae from Guatemala. [65] 49: 63–65, ill. **Hsiao and Sailer**—The orchid bugs of the genus Tenthecoris Scott (Mirids). [48] 37: 64–72 (k*), ill. **Jacob, F. H.**—An account of a black aphid, Doralis fabae (Scop.) subsp. armata (Hausmann), found on Digitalis purpurea L. [19] 37: 431–37, ill. **Knowlton, G. F.**—A new Macrosiphum from Zion National Park. [18] 41: 158–61; Aphid field notes. [18] 41: 166–67. **Metcalf, Z. P.**—Center of origin theory. [38] 62: 149–76, ill. (Homoptera). **Monte, O.**—Revisão do genero Leptocysta (Tingid). [111] 6: 325–31 (k*), ill. **Osborn and Knull**—Check list of Ohio leafhoppers (Cicadellid). [58] 46: 329–36. **Sailer, R. I.**—Dysdercus bimaculatus restored (Pyrrhocorid). [65] 49: 15–19. **Servadei, A.**—Sulla presenza in Albania della Ceresa bubalus, F. e la sua diffusione in Europa. [106] 28: 1–10, ill. (1942). **Wygodzinsky, P.**—Sobre um novo genero e uma nova especie de microphysidae do Brasil (Cimicoidea). [111] 6: 333–40, ill.

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